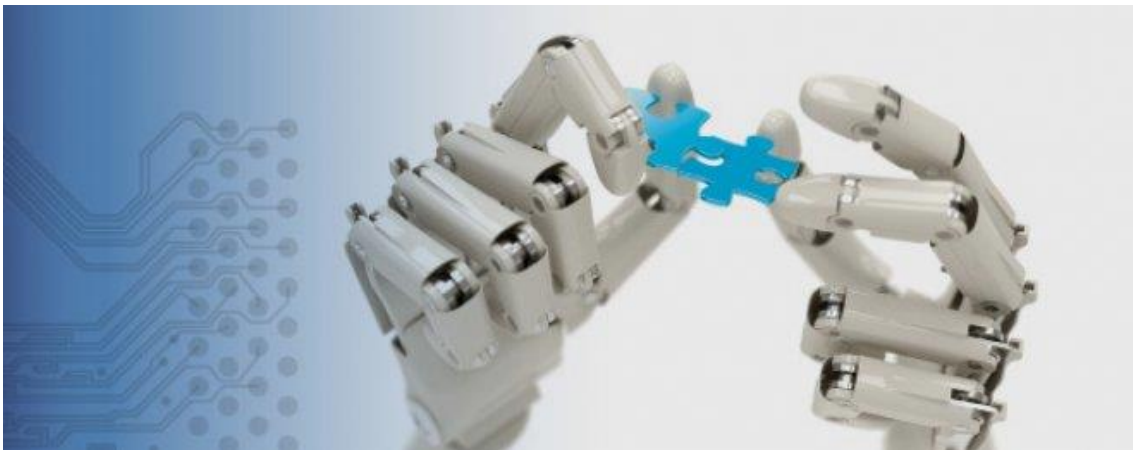


# ROBOTICS MASTER

Universitat de Vic



**Subject: Perception Systems**

**Session1: Sensors and Measurements**

**Exercixse 1.3: Digital Camera – Mona Lisa Pixels**

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**Date: 2015-11-15**

## Robotics Master – Robotics Integration: Exercise 1.1: Human Tracking

### Exercise 1.3.

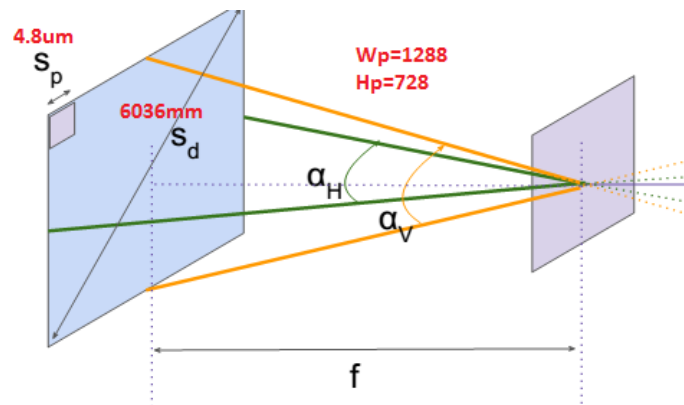
Go to the link: <http://www.ptgrey.com/blackfly-09-mp-color-gige-vision-poe-sony-icx692-camera> , which is a digital camera from one of the major camera brands used in robotics.

- Try to understand the specs by drawing them in a sketch similar to that of slide 14.
- Using a Lense of 8mm ( <http://www.ptgrey.com/m12-micro-lens-8mm-3> ), How many pixels will represent the Mona Lisa painting if it is situated at 1,2,5,10 m ? Draw a plot distance-pixels. (Mona Lisa dimensions are: 77cm x 53 cm, [https://en.wikipedia.org/wiki/Mona\\_Lisa](https://en.wikipedia.org/wiki/Mona_Lisa) )
- Why the proposed (linked) lense in b) could not be used easily with this camera ?

### Exercise 1.3.

Go to the link: <http://www.ptgrey.com/blackfly-09-mp-color-gige-vision-poe-sony-icx692-camera>, which is a digital camera from one of the major camera brands used in robotics.

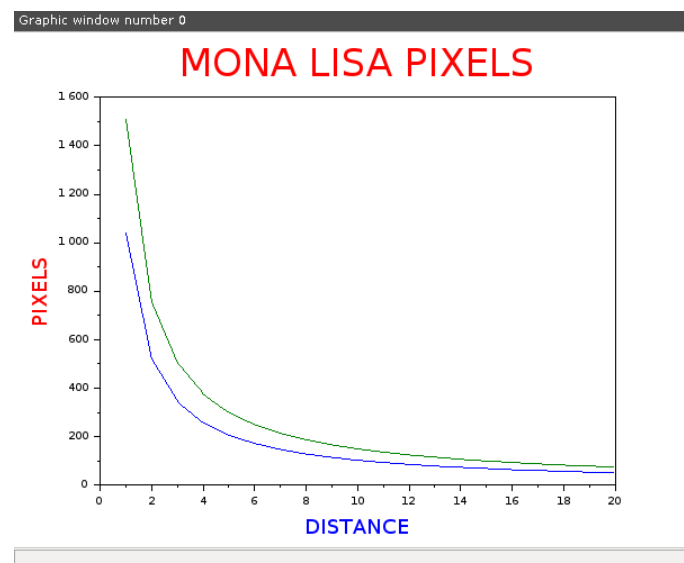
A. Try to understand the specs by drawing them in a sketch similar to that of slide 14.



B. Using a Lense of 8mm ( <http://www.ptgrey.com/m12-micro-lens-8mm-3>), How many pixels will represent the Mona Lisa painting if it is situated at 1,2,5,10 m ? Draw a plot distance-pixels. (Mona Lisa dimensions are: 77cm x 53 cm, [https://en.wikipedia.org/wiki/Mona\\_Lisa](https://en.wikipedia.org/wiki/Mona_Lisa))

→ Program done in C++ (See attached code). This code can calculate Mona Lisa pixels at specific distance or in the range 1m to 10m. And also can calculate pixels of any other picture at any distance introduced by user

→ Plot done in SCILAB:



**C. Why the proposed (linked) lense in b) could not be used easily with this camera ?**

Because the lens Mount of the camera system is a “CS” mount of 5mm. And the lens used is a “S” mount M12 type of 8mm.

S-Mount use a male M12 metric with 0.5mm pitch. These lens mounts are usually attached to the PCB not directly to the camera. C-mount provides a male thread which mates with a female thread on the camera. CS-mount is very similar to C-mount but is for smaller formats.

To use this lens in this camera an adapter is required. Such as;

<http://www.lensation.de/shop/detail/28-accessories/flypage/557-s-mount-to-c-mount-adapter-ad05oh.html?sef=hcfp>

**Camera system:**

Lens Mount	CS-mount (5 mm C-mount adapter not included)
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**Lens:**

Manufacturer Part Number	Boowon BW80H-1000
Focal Length	8mm
Optical Format	1/3"
Lens Mount	S Mount (M12)